

Dehydration unit for double glazing

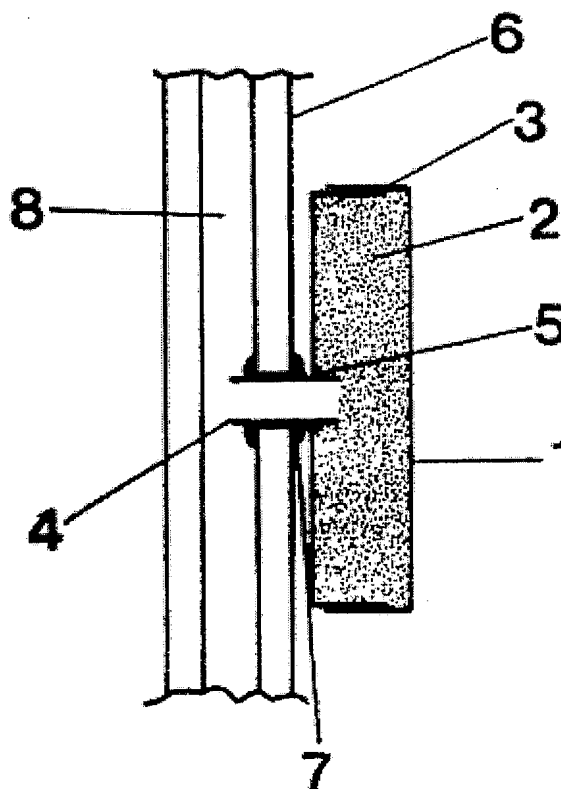
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Abstract of **GB2209365**

Internal condensation in sealed double glazing assemblies 6 is removed by fitting a box 1 containing moisture absorbing material such as silica gel 2. The box is connected via a hermetic seal 7 so the entire system is isolated from the surrounding air. When the moisture absorbing material is exhausted the box or contents can be removed and replaced with a new unit or material, or, alternatively the material can be rejuvenated. The box is in two parts.

Figure 1



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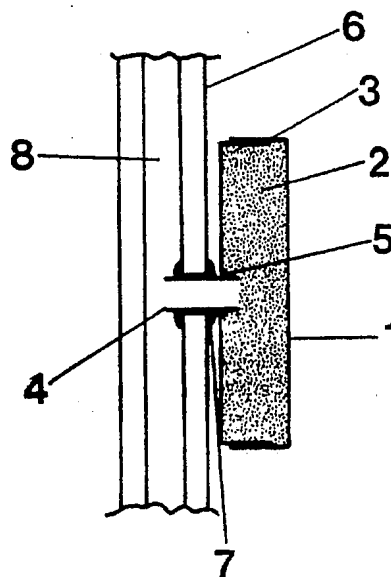
(56) Documents cited
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(54) Dehydration unit for double glazing

(57) Internal condensation in sealed double glazing assemblies 6 is removed by fitting a box 1 containing moisture absorbing material such as silica gel 2. The box is connected via a hermetic seal 7 so the entire system is isolated from the surrounding air. When the moisture absorbing material is exhausted the box or contents can be removed and replaced with a new unit or material, or, alternatively the material can be rejuvenated. The box is in two parts.

Figure 1



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Figure 1

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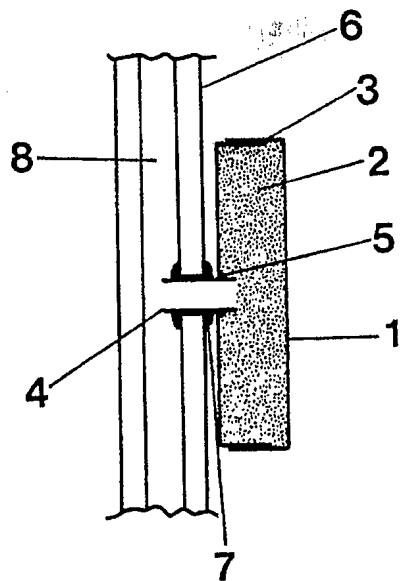
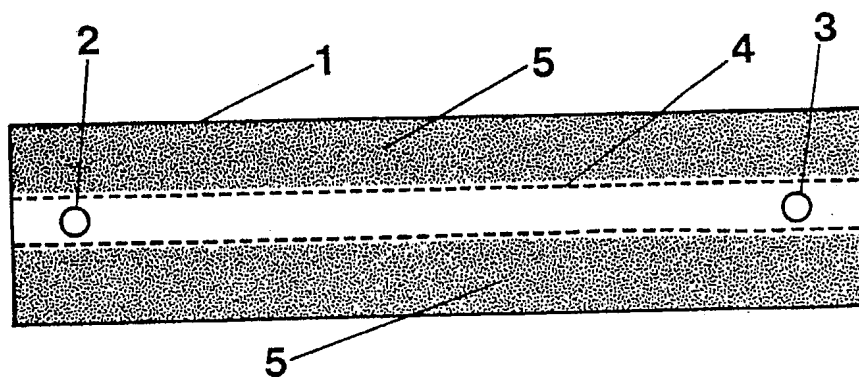


Figure 2



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DEHYDRATION UNIT FOR HERMETICALLY SEALED DOUBLE GLAZING

This invention relates to a dehydration unit for hermetically sealed double glazing.

One way of double glazing windows is to instal sealed glazing assemblies, often referred to as sealed units, comprising two panes of glass fixed to one another at their perimeters, but separated by an air-space. The enclosed space within the assembly is filled with moisture-free gas, and is separated from the surrounding atmosphere. The perimeter seal which was originally air-tight sometimes partially fails, whereupon water vapour gradually enters from the surrounding atmosphere and eventually causes condensation to form on the inner surfaces of the glass of the sealed assembly. There is no easy way of removing this moisture because the assemblies are designed on the supposition that the seal will be permanent so that no moisture will ever enter. It is customary to treat seal failure and subsequent condensation by removing the whole defective sealed assembly and replacing it with a new one.

According to the present invention there is provided a dehydration unit which can be mounted on the outer surface of either the interior or exterior glass pane of the sealed glazing assembly. The moisture absorbing material within the dehydration unit is enclosed in a container which is air-tight except for one or more openings which are equipped to be hermetically connected to the air space of the glazing assembly, via a hole or holes in the glass, made therein for the purpose of connecting the unit. The unit can be recharged, either by replacing the moisture absorbing material without removing the unit, or by disconnecting the unit from the window so that it can be replaced with a fresh unit or returned after the moisture absorbing material has been rejuvenated. After the moisture absorbing material has removed the moisture present in the system at the time of fitting it only has to cope with a small continual further supply through the defective seal.

A specific embodiment of the invention will be described by way of example with reference to the accompanying drawing in which:-

Figure 1 shows a section of a part of a sealed glass assembly with the dehydration unit in place.

Referring to the drawing the dehydration unit comprises a box of appropriate material such as tinned steel 1 filled with a suitable moisture absorbing material such as silica gel 2. The two parts of the box are provided with an air-tight seal such as a self-fabricating gasket of silicone rubber 3. A tube 4 is sealed to the box by an air-tight method such as a soldered or brazed joint 5. One of the panes of the sealed glazing assembly 6 is drilled to accommodate a rubber or plastic grommet 7 into which the tube of the dehydration unit is inserted to provide an air-tight seal by virtue of the good fit ensuring that the rubber or plastic is compressed. By such means the contents of the box are connected to the air space 8 between the two panes of glass.

When the moisture absorbing material within the box is exhausted the box may be removed and either discarded and replaced with another or, subsequent to removal, the material within the box may be recharged and then the box returned to the window. Use of a disposable box permits a wide choice of container materials, moisture absorbing agents and fabrication techniques. A rechargeable unit could be constructed of metal, filled with silica gel and rejuvenated by heating in a domestic oven at 100-180°C for a few hours.

The connection between moisture absorbing material and the air-space in the glazing assembly may be made using one or several holes, the latter option encouraging convective air flow.

The box may be mounted on the interior glass surface, that is inside the house, or on the exterior glass surface, that is outside the house.

Figure 2 shows a section through a metal box 1 equipped with two tubes, 2 & 3, which are fitted to a glazing assembly by similar means to those illustrated in figure 1. A gauze insert 4 maintains a free air-flow between the connecting tubes while maximizing contact of the air with the moisture absorbing material 5.

The boxes may be various shapes and sizes.

CLAIMS

- 1 A dehydration unit comprising a box containing moisture absorbing material which is externally mounted on a sealed glazing assembly. A hermetic seal (or seals) connects the contents of the dehydration unit to the air within the window while preventing contact with the surrounding atmosphere. The unit removes moisture already within the glazing assembly and further supplies of moisture due to failure of the original seal of the glazing assembly.
- 2 A dehydration unit as claimed in Claim 1 wherein the whole unit is detachable.
- 3 A dehydration unit as claimed in Claim 1 wherein the moisture absorbing material is capable of being replaced without removing the unit.
- 4 A dehydration unit as claimed in Claim 1, Claim 2 and Claim 3 wherein the connection is made by a single hole made in the glass for that purpose.
- 5 A dehydration unit as claimed in Claim 1, Claim 2 and Claim 3 wherein the connection is made by more than one holes.
- 6 A dehydration unit as claimed in Claim 1 and Claim 2 which can be discarded and replaced with another.
- 7 A dehydration unit as claimed in Claim 1 and Claim 2 which can be regenerated and returned to the window.
- 8 A dehydration unit substantially as described herein with reference to Figure 1 of the accompanying drawing.
- 9 A dehydration unit substantially as described herein with reference to Figure 2 of the accompanying drawing.

Amendments to the claims
have been filed as follows

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CLAIMS

1 A dehydration unit, comprising a box containing moisture absorbing material, which is externally mounted on a sealed glazing assembly already fitted into a frame. A hole (or holes) is drilled into one of the panes of glass of the glazing assembly and a hermetic seal (or seals) is fitted to the hole so that the contents of the dehydration unit are connected to the air within the window while preventing contact with the surrounding atmosphere. The unit, which is fitted with the glazing assembly and frame in place, removes moisture already within the glazing assembly and further supplies of moisture due to failure of the original seal of the glazing assembly.

2 A dehydration unit as claimed in Claim 1 wherein the whole unit is detachable.

3 A dehydration unit as claimed in Claim 1 wherein the moisture absorbing material is capable of being replaced without removing the unit.

4 A dehydration unit as claimed in Claim 1, Claim 2 and Claim 3 wherein the connection is made by a single hole made in the glass for that purpose.

5 A dehydration unit as claimed in Claim 1, Claim 2 and Claim 3 wherein the connection is made by more than one-holes.

6 A dehydration unit as claimed in Claim 1 and Claim 2 which can be discarded and replaced with another.

7 A dehydration unit as claimed in Claim 1 and Claim 2 which can be regenerated and returned to the window.

8 A dehydration unit substantially as described herein with reference to Figure 1 of the accompanying drawing.

9 A dehydration unit substantially as described herein with reference to Figure 2 of the accompanying drawing.